RECEIVED

CENTRAL FAX CENTER

JUN 2 2 2006

KUDIRKA & JOBSE, LLP

One State Street, Suite 800
Boston MA 02109
Tel: (617) 367-4600
Fax: (617) 367-4656

FACSIMILE COVER SHEET

Number of pages being transmitted (including cover sheet): 8

Date: June 22, 2006   **Time:**   4:20 PM.

TO:	**Name:**	M/S AF - Pre-Appeal Brief Request for Review
	Company:	US PTO
	Facsimile No:	(571) 273-8300
	Telephone No:	
FROM:	**Name:**	Paul E. Kudirka/Jan Mellen
RE:	**Our File Number:**	112047-0036 (S0100/7204)
	Your File Number:	09/893,264

Originals By: ☐ First Class Mail   ☐ Overnight   ☐ Air Mail   ☒ Not Sent

Comments or Instructions

This transmission contains confidential information intended for use only by the above-named recipient. Reading, discussion, distribution, or copying of this message is strictly prohibited by anyone other than the named recipient, or his or her employees or agents. If you have received this fax in error, please immediately notify us by telephone (collect), and return the original message to us at the above address via the U.S. Postal Service.

IF YOU DID NOT RECEIVE ALL OF THE PAGES OF THIS TRANSMISSION
OR IF ANY OF THE PAGES ARE ILLEGIBLE, PLEASE CALL
IMMEDIATELY AT (617) 367-4600

PRE-APPEAL BRIEF REQUEST FOR REVIEW	Docket No. 112047-0036

Applicant:	Nir N. Shavit, Xiolan Zhang and Christine H. Flood
Serial No:	09/893,264
Filed:	June 27, 2001
For:	TERMINATION DETECTION FOR SHARED-MEMORY PARALLEL PROGRAMS
Examiner:	K. Tang
Art Unit:	2195

CERTIFICATE OF FACSIMILE TRANSMISSION

The undersigned hereby certifies that this document is being transmitted by facsimile to the U.S. Patent and Trademark Central Office at Facsimile No. 571-273-8300 on June 22, 2006.
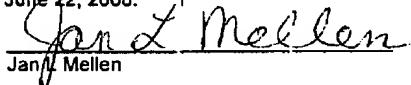
Jan L. Mellen

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal

The review is requested for the reason(s) stated on that attached sheet(s).

Respectfully submitted
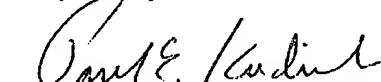
Paul E. Kudirka, Esq. Reg. No. 26,931   Date: 6/22/06
KUDIRKA & JOBSE, LLP
Customer Number 045774
Tel: (617) 367-4600 Fax: (617) 367-4656

REASONS FOR REVIEW

Claims 1-5, 7-9, 11-19, 21-23, 25-33, 35-37, 39-47, 49-51 and 53-57 have been rejected under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 6,434,590 B1 (Blelloch) in view of U.S. Patent Publication No. 2001/0025295 (Kawachiya.) Applicants contend that the examiner has failed to establish a *prima facie* basis for rejection of the claims as obvious.

The invention is a method and apparatus for determining, in a system in which parallel threads are executing, when the processing of each thread is done This is not straightforward because, when a thread has completed tasks assigned to it, it may search for other tasks to be performed, claim those tasks and perform them. As claimed, each of a plurality of independent threads read each other's status-word fields and then terminate themselves based on their own determination of when their processing is complete and no further tasks remain to be processed.

The Blelloch patent discloses a system in which tasks are performed by parallel threads, but another process or set of processes, the assignment manager, both schedules the parallel threads, receives information for each thread and determines when the entire parallel processing program is complete. The examiner contends that the claims must be given their broadest reasonable interpretation consistent with the specification and that the broadest reasonable interpretation of the term "thread" used in the claims is a computer instruction. Consequently, the examiner concludes that the assignment manager program instructions, interpreted as "threads" determine which tasks execute and when all threads have completed.

The term "thread" is a well-known term of art that means one or more computer instructions executing in a separate process with a context switch involved in changing execution from one thread to another. Not only is this well-known, but the term is defined in the present specification at page 1, line 18 to page 2, line 12 as such. Thus, while a single computer instruction could constitute a "thread", the separate instructions of a single process could not constitute "threads" unless the execution of each instruction was accompanied by a context switch. There is no indication that this is the case in Blelloch. In response, the examiner claims that limitations disclosed in the specification will not be imported into the claims. However, rather than applicants importing limitations in the specification into the claims, the examiner is interpreting the word "thread" in a manner that is contrary to the well-known usage and contrary to the definition in the specification in order to attempt to read the claims onto the Blelloch and Kawachiya references. The claims must be given their broadest reasonable interpretation consistent with the specification. *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). The broadest interpretation of the claims must also be

consistent with the interpretation that those skilled in the art would reach. *In re Cortright*, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999). Therefore, the interpretation that the examiner is trying to place on the term "thread" is not correct.

Applicants have argued that the claims cannot read onto the Blelloch assignment manager by itself because the assignment manager does not perform the tasks that it has "found". The examiner responds that the claims do not require that the entity that finds the task also executes that task. Applicants disagree – for example, claim 1 recites, in lines 6-9, "... a mechanism that operates the threads in a manner that <u>each thread</u> ... <u>executes a task-finding routine to find tasks</u> previously identified dynamically and <u>performs tasks thereby found</u>..."(emphasis added). It is clear that the same thread that finds the tasks also executes them. While the Blelloch assignment manager may find tasks, it clearly places the tasks on a queue so that other threads can actually perform the tasks.

The examiner asserts that applicants argued that Blelloch and Kawachiya are not related to each other and therefore, are not combinable. However, to the contrary, applicants argued that combining Kawachiya with Blelloch would not teach or suggest the claimed invention because Kawachiya is directed towards locking common data in a system with parallel threads, not with scheduling and terminating threads. Thus, its combination with Blelloch cannot change the thread scheduling arrangement disclosed in Blelloch which is to have a central thread task assignment manager decide when all threads have completed their work and that the parallel processing task is finished rather than have each thread decide when it has finished as recited in the claims.

Applicants also argued claim 1, for example, recites, in lines 21-24 (step iv) that, based on an examination of the status-words of other threads and the results of a search for additional tasks, each thread terminates itself. Therefore, if the Blelloch assignment manager is simply another thread, as the examiner contends, there is no teaching or suggestion that the Blelloch assignment manager terminates itself as recited.

The examiner asserts that, in Blelloch, each thread terminates itself when it executes an END statement. Applicants do not disagree with this assertion, but the claims, such as claim 1, recite that a thread terminates itself based on an examination of the status-words of other threads and the results of a search for additional tasks, not when an END statement is reached.